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EXAMINER	
TAYONG, HELENE E	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
11/17/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tammy@ppglaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/700,855	LINDOFF ET AL.	
	Examiner	Art Unit	
	HELENE TAYONG	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/03/09*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *36* is/are allowed.

6)☒ Claim(s) *1-11,15-19 and 21-32* is/are rejected.

7)☒ Claim(s) *12-14,20 and 33-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed on 09/03/09.

Claims 1-36 are pending in the instant application and have been considered below.

Response to Arguments

2. Applicants arguments regarding the rejection of Claims 1,4-8,15-16, 25 and 29 under 35 U.S.C. 103(a) as being unpatentable over Wang (US 20060154633) in view of Lin (US 20030142730) have been considered but are moot in view of the new ground(s) of rejection because of amendments.

3. Applicants arguments regarding the rejection of Claims 1-24 under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention, claim 25-29, 33-35 and claims 30-32 because the claimed invention is directed to non-statutory subject matter have been considered and rejection withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1,4-11,17-19, 21,22-25 and 29 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Wang (US 20060154633) in view of Ishikawa et al (US 7193978).

(1) with regards to claims 1,17 and 25;

Wang discloses in (figures 7-10) discloses a (method /apparatus) of estimating interference (fig.10, S3) in a terminal in a code division multiple access communication system (figure 1, page 2, [0032]), in which a pilot channel uses a scrambling code and the terminal uses an alternative scrambling code on a dedicated channel determined by a channelization code (page 3, [0040]-[0046]), comprising the steps of:

an empty channelization code m under the alternative scrambling code (idle channelization code) (see abstract and fig. 7).

If an empty channelization code (idle channelization code) m is determined, using the empty channelization code (idle channelization code) m for estimating the interference (fig. 7, 30).

In Wang, a selector is used to select the idle channalization code, but Wang is silent about

(a) the terminal determining whether the terminal knows of an empty channelization code m under the alternative scrambling code

(b) if the empty channelization code m is not known to the terminal, then the terminal estimating the interference by determining a variance of symbols in at least two portions of the dedicated channel.

(i) with regards to item (a) above;

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4,

spread code allocations (208) and in fig. 4 chanalization code with use situations (1 for on use and 0 for vacant,) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(ii) with regards to item (b) above;

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4, spread code allocations (208) and in fig. 4, chanalization code with use situations 1 for on use and 0 for vacant) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51). In fig. 10, 317 allocation determiner is disclosed that is used to determine first uplink interference electric power and second uplink interference electric power and compared to a threshold (col.15, lines 19-42).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(2) with regards to claim 4;

Wang discloses further discloses wherein the dedicated channel is a dedicated

physical channel (DPCH) (page 3, [0046]) and the pilot channel is a common pilot channel (CPICH) (page 3, [0040]-[0043] and [0046]).

(3) with regards to claim 5;

Wang further discloses determining an empty channelization code m based on either information of such an empty code or identification of the empty code (see abstract, fig. 7, 28 and page 3, [0043]-[0046]).

(4) with regards to claims 6 and 21;

Wang further discloses wherein the information of the empty channelization code m is included in a message sent to the terminal (figure 10 and page 4, [0052]).

(5) with regards to claim 7;

Wang further discloses implicitly discloses wherein the information of an empty channelization code m is included in a specification of the communication system (page 3, [0038]).

(6) with regards to claim 8;

Wang further discloses wherein the information of an empty channelization code includes channelization codes used by a common control channel (fig. 7, fig. 5 and page 3, [0039]-[0040]).

(7) with regards to claims 9, 10 and 11;

Wang discloses wherein identification of the empty channelization code m (idle

channailzation code, see abstract, fig.10) comprises the steps of:

Wang discloses all of the subject matter disclosed above but is specific about generating an initial interference estimate (I-estimate); setting a threshold based on the initial I-estimate; selecting a candidate empty channelization code; for the candidate empty channelization code, forming an I-estimate; comparing the formed I-estimate to the threshold; and if the formed I-estimate exceeds the threshold, selecting another candidate empty code and repeating the forming and comparing steps, otherwise identifying the candidate empty code as the empty channelization code.

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4, spread code allocations (208) and in fig. 4 chanalization code with use situations (1 for on use and 0 for vacant,) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51). In fig. 10, 317 allocation determiner is disclosed that is used to determine first uplink interference electric power and second uplink interference electric power and compared to a threshold (col.15, lines 19-42).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(8) with regards to claim 16;

Wang further discloses further discloses wherein the estimated interference is

used for estimating a signal-to-interference ratio (page 3, [0046]).

(9) with regards to claims 18 ,19 and 22;

Wang discloses all of the subject matter discussed above, but is silent about wherein the initial I-estimate is based on a variance of symbols in a signal received by the terminal and wherein the threshold is set as the initial I- estimate and applied in claim 19.

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4, spread code allocations (208) and in fig. 4 channalization code with use situations (1 for on use and 0 for vacant,) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51). In fig. 10, 317 allocation determiner is disclosed that is used to determine first uplink interference electric power and second uplink interference electric power and compared to a threshold (col.15, lines 19-42).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(10) with regards to claim 23;

Wang further discloses wherein the candidate empty channelization code (idle channelization code) m is selected based on predetermined code allocation rules (Fig. 7, 14, fig. 10).

(11) with regards to claim 24;

Wang further discloses wherein the candidate empty channelization code (idle codes) m is selected by determining a channelization code used by a channel, locating the used channelization code in a code tree(fig2) , and choosing as the candidate empty channelization code m a code in the code tree that is remote from the used channelization code (figs.7 and 10).

(11) with regards to claim 29;

Wang further discloses wherein the terminal complies with a standard for a universal mobile telecommunications system (UMTS) (also known as W-CDMA), (fig. 1 and page 2, [0025] and [0032]).

6. Claims 2-3,15 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US 20060154633) in view of Ishikawa et al (US 7193978) as applied in claims 1 and 25 above, and further in view of Jokinen et al (US 6038238).

(1) with regards to claims 2 and 26;

Wang as modified by Ishikawa et al discloses wherein the variance of symbols is determined by estimating the interference by determining a variance of symbols in at least two portions of the dedicated channel (fig. 1, UL-DPDCH/DPCCH, fig. 5).

Wang as modified by Ishikawa et al discloses all of the subject matter discussed above, but for specifically teaching determining whether the communication system is not using discontinuous transmission (DTX),

However, Jokinen et al in the same endeavor discloses in (fig.4), a method to realize discontinuous transmission (DTX) in a telecommunications network (col. 5, lines 20-36).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the method of Jokinen et al in the method of Wang as modified by Lin in order to determine whether the communication system is not using discontinuous transmission (DTX). The motivation to utilize the method of Jokinen et al in the method of Wang as modified by Ishikawa et al would be to reduce co-channel interference and its effect on the communication quality (col. 1, lines 16-18).

(2) with regards to claims 3 and 15;

Wang further discloses wherein the at least two portions include a dedicated physical control channel (DPCCH) (page 3, [0040]-[0043]) and

implicitly discloses a dedicated physical data channel (generally, a dedicated radio link comprises a physical control channel called (DPCCH) dedicated physical control channel and physical data channels called DPDCH (dedicated physical data channel) (DPDCH).

7. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US 20060154633) in view of Ishikawa et al (US 7193978) and further in view of Langberg et al (US 5852630).

(1) with regards to claims 30, 31 and 32;

Wang discloses in (figures 7-10) discloses a (method /apparatus) of estimating interference (fig.10, S3) in a terminal in a code division multiple access communication system (figure 1, page 2, [0032]), in which a pilot channel uses a scrambling code and the terminal uses an alternative scrambling code on a dedicated channel determined by a channelization code (page 3, [0040]-[0046]), comprising the steps of:

an empty channelization code m under the alternative scrambling code (idle channelization code) (see abstract and fig. 7).

If an empty channelization code (idle channelization code) m is determined, using the empty channelization code (idle channelization code) m for estimating the interference (fig. 7, 30).

In Wang, a selector is used to select the idle channalization code, but Wang is silent about

(a) the terminal determining whether the terminal knows of an empty channelization code m under the alternative scrambling code

(b) if the empty channelization code m is not known to the terminal, then the terminal estimating the interference by determining a variance of symbols in at least two portions of the dedicated channel.

(c) the method written by a software program embodied in a computer-readable medium.

(i) with regards to item (a) above;

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4, spread code allocations (208) and in fig. 4 chanalization code with use situations (1 for

on use and 0 for vacant,) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(ii) with regards to item (b) above;

However, Ishikawa et al in the same endeavor (CDMA) discloses in figs 3 and 4, spread code allocations (208) and in fig. 4, chanalization code with use situations 1 for on use and 0 for vacant) to determine whether or not a spread code used for communications can be allocated (fig. 14, col. 19, lines 1-51). In fig. 10, 317 allocation determiner is disclosed that is used to determine first uplink interference electric power and second uplink interference electric power and compared to a threshold (col.15, lines 19-42).

It would have been obvious to one of ordinary kill in the art at the time of the invention to have utilized the method as taught by Ishikawa et al in the method of Wang in a manner as claimed in this application for the benefit of reducing interference in communication systems.

(iii) with regards to item (c) above;

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an

electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method (column 3, lines 51-65).

One of ordinary skilled in the art would have clearly recognized that the method of Wang as modified by Ishikawa et al would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention was made to use the software as taught by Langberg et al. in the method of Wang as modified by Ishikawa et al in order to reduce cost and improve the adaptability and flexibility of the communication system.

Allowable Subject Matter

8. Claim 36 is allowed.

The following is an examiner's statement of reasons for allowance: The prior arts of record Wang (US 20060154633) and Ishikawa et al (US 7193978) do not discloses

if the formed I-estimate exceeds the threshold, selecting another candidate empty channelization code and repeating the forming and comparing steps, otherwise identifying the candidate empty channelization code m as an empty channelization code,

wherein the I-estimate is formed according to $I_m = \frac{1}{N}\sum_{k=1}^{N}\left|d_k^m\right|^2$,

wherein:

I_m is an estimate of interference power on a code m;

N is a number of symbols used in forming the I-estimate;

d_k^m represents a k-th symbol despread with respect to applicable scrambling and channelization codes.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. Claims 12,13,14, 20,33, 34 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior arts of record Wang (US 20060154633) and Ishikawa et al (US 7193978) do not discloses wherein the interference is estimated by determining a variance of symbols according to

$$i_{psch} = \frac{1}{N}\sum_{i=1}^{n}\left|n_d(k) - m_d\right|^2.$$

wherein:

$\hat{I}_{DPCH}$ is an interference estimate for a dedicated physical channel (DPCH);

a_d (k) is a complex amplitude of a k-th sample of a despread received signal d_k;

N is a number of complex amplitudes; and

m_d is a mean of a number N of the complex amplitudes.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE TAYONG whose telephone number is (571)270-1675. The examiner can normally be reached on Monday-Friday 8:00 am to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Liu Shuwang can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helene Tayong/
Examiner, Art Unit 2611

November 8, 2009

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611